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Review Article

Nutrition in Renal Supportive Care: Patient-driven and flexible

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ABSTRACT:

Renal Supportive Care is an alternative treatment pathway in advanced chronic kidney disease that is being increasingly adopted, particularly in the elderly. Renal Supportive Care uses principles of palliative care and has been developed to enhance the care for dialysis patients with a high symptom burden and those being managed on a non-dialysis pathway. Nutrition management is often an under-recognized component of care and can play an important role in improving patients' quality of life to reduce symptom burden, support physical function and independence and provide appropriate counselling to patients and their families to ensure the goals of Renal Supportive Care are met. Nutrition interventions need to target patient and treatment goals, with frequent monitoring to ensure patient needs are being met. This review outlines available literature on this topic and suggests some practical ways in which nutrition can be enhanced for these patients.

SUMMARY AT A GLANCE

The present review discusses the nutritional aspects of Renal Supportive Care (RSC) in terminally ill end-stage renal disease patients (ESRD) focusing on high symptom burden patients and those with end-stage renal disease being managed without dialysis.

INTRODUCTION

Chronic kidney disease (CKD) prevalence has been increasing worldwide, particularly in older populations. Recognition has increased that dialysis may not be suitable for all people with advanced CKD, particularly the elderly and those with significant co-morbidities. Renal Supportive Care (RSC) uses palliative care principles to address gaps in patient care for both conservatively managed and dialysis-dependent patients experiencing significant symptom burden and/or a high co-morbidity burden. RSC encompasses more than just end-of-life (EoL) care, with early identification of appropriate patients and referral to RSC recommended.[1] RSC aims to optimize patients' well-being and quality of life (QoL), reduce symptom burden, facilitate advanced care plan discussions, provide support to patients and their support networks throughout the patients' treatment and plan for EoL preferences. RSC has led to a paradigm shift in treatment goals, from prolonging life to a focus on patient-centred care, QoL and symptom control.[1]

Renal dietitians play an important role in the management of people with CKD, including those on a conservative, non-dialysis pathway (CKD-RSC). Multiple co-morbidities are common, with associated nutritional needs that dietitians need to prioritize to improve patient outcomes. Traditional CKD dietary management has focused on prolonging life, dialysis preparation and secondary complication risk reduction through complex and comprehensive dietary prescription, including restriction of electrolyte, fluid and macronutrient intake. In contrast, dietary management in the CKD-RSC needs to align with patient goals, with QoL and symptom burden often taking priority. Dietary education needs to enable patients, and their support networks, to make informed dietary choices that are relevant to their cultural, social and personal circumstances.

There is a paucity of literature regarding the nutritional management of CKD-RSC patients. For in-depth guidance on macronutrient and micronutrient intake, practitioners should refer to established CKD evidence-based practice (EBP) nutrition guidelines.[2–4] The scope of this paper is to raise awareness of

the role of the multidisciplinary team in nutrition management of CKD-RSC patients. In particular, the scope of this paper is practical nutrition management in CKD-RSC, such as nutrition counselling, nutritional QoL, supporting physical function and independence, the management of nutrition-related symptoms and nutrition at EoL.

NUTRITION COUNSELLING

Food is much more than the nutrients it contains, and it is important to develop a shared understanding of patients' and their families' goals and priorities, to develop positive, flexible and tailored nutrition interventions that support nutritional QoL.[5] This patient-centred approach to nutrition reinforces the general philosophy of palliative care. Effective communication with patients and carers is crucial to alleviate many of the stresses that are experienced around food, allowing open conversations about symptom management, QoL and balancing a more permissive style of eating. Key factors that assist with patient satisfaction and empowerment include the feeling of being listened to, receiving meaningful explanations around the rationale of eating plans, individualized advice and assistance to find solutions to eating problems.[6–8] Conversations around personal values and goals are imperative for dietitians to maximize the impact of nutrition interventions.[6,9] Important components of nutrition counselling for CKD-RSC patients are outlined in Table 1.

Promoting physical function and independence

Sarcopenia is common in CKD and leads to frailty and loss of independence.[10,11] The prevalence of frailty in the non-dialysis CKD population has been estimated to be twofold greater than for age-matched controls and has been associated with a 2.5-fold higher risk of death, increased rates of hospitalization and reduced ability to perform activities of daily living.[12] Frailty is measured using functional assessments, such as gait speed, muscle strength and self-reported physical function.[12] Maintaining physical strength, mobility and balance to prevent falls and preserve independence improves QoL, nutritional parameters and cardiovascular disease and reduces the likelihood of hospital admission.[13,14]

Individualized, structured exercise programs incorporating resistance training improve cardiorespiratory fitness, muscle strength and functional capacity in patients with CKD and are an effective means to counteract physical frailty.[15–17] Qualified exercise professionals, such as Physiotherapists and Exercise Physiologists, are best placed to assess physical function and advise on appropriate physical activity to align with patient goals, nutrition and safety needs.[12,17] However, in reality, assessment of physical function needs to be routine practice for all medical, nursing and allied health professionals and should be encouraged as a proactive strategy to support the goals of CKD-RSC.

Table 1 Nutrition counselling practices for conservative, non-dialysis patients

1. Be clear about the rationale for dietary advice

Educate patients and families regarding dietary goals:

- Symptom management *versus* slowing disease progression.
- Biochemistry that can be acutely unsafe (e.g. hyperkalemia) compared with those with long-term implications, which may not have acute, life-threatening impacts (e.g. hyperphosphataemia).

2. Prioritize a whole diet philosophy

- Eating pattern may be more important than individual foods.[5]
- Personal, religious and cultural values need to be considered in the broader context.[51]
- The social aspects of eating should not be ignored or downplayed, as simply being part of social eating may be more important to patients than the amount of food consumed.[51]

3. Develop patient-centred nutrition care plans

Nutrition counselling should

- Assist patients to make informed decisions, reduce food-related anxiety and correct any misinformation leading to unnecessary dietary restrictions.[55]
- Support patient choice to relax dietary restrictions, aware of the possible consequences or continue with diet restrictions for symptom or personal choice.
- Provide practical advice to allow the RSC patient to 'bend the rules' (such as occasionally enjoying higher potassium fruits in moderation) to optimize nutritional management while maintaining nutritional QoL.
- Be flexible in response to changing needs as patient goals change throughout the disease trajectory.[51,56]
- Provide regular review of nutrition goals, priorities and interventions to assist in improving symptom burden and enhancing QoL.[51]

4. Incorporate cultural values

Nutrition holds powerful symbolic and social significance for many patients and their families, which can vary between different cultures. A culturally competent dietitian will

- Be aware of their own food values (and resultant biases).
- Respect patients' cultural beliefs and understand that these beliefs influence food intake and a person's ability to adapt dietary recommendations.[57]

5. Reduce diet-related anxiety

Dietary changes and meal times can become overwhelming and anxiety-provoking for patients and their caregivers[9,58,59]; dietitians should

- Provide simple, specific and supportive advice targeting nutrition priorities that will enhance patients' well-being and help manage symptoms.[9] For example, providing simplified, targeted dietary educations with specific food swaps to allow easy incorporation of advice.
- Allow patients and their families the option to make informed decisions about helpful eating behaviours can reduce the burden of disease and contribute to patients' maintaining a sense of control within their lives throughout all stages of their disease.[9,58]

QoL, quality of life; RSC, Renal Supportive Care.

A brief overview of physical assessment measures and exercise prescription for people with CKD is outlined in Table 2.

Nutrition to support exercise and physical function

It is critical to ensure that an exercise programme is supported with appropriate nutritional intake.[15] Traditionally, restricted protein diets of 0.6–0.8 g protein per kilogram of bodyweight

Table 2 Assessment of physical function and physical activity promotion

Assessing physical function[4,60,61]

Physical function should be measured every 6 months. Suggested assessment measures include

- Short Physical Performance Battery (functional assessments including gait speed, sit-to-stand, and balance exercises) 6-min walk test (used to assess exercise capacity and measures the distance an individual is able to walk over a total of 6 min on a hard, flat surface).
- Sit-to-stand test (used to assess functional lower extremity strength in older adults).
- Timed up and go (used to assess a person's mobility and requires both static and dynamic balance. Patient is timed at how quickly they rise from a chair, walk 3 m at a comfortable and safe pace, turn and walk back to the chair and sit down).

Exercise prescription[4,62]

- Physical activity should be incorporated gradually at low levels if patient is deconditioned. If severely deconditioned, consider referral to physiotherapy.
- Physical activity should incorporate resistance training, flexibility and cardiorespiratory exercises**available resources have been published through Kidney Health Australia and Life Options Renal Rehabilitation Advisory Council.*
- Recommend moderate intensity exercise for 30 min most if not all days of the week**moderate intensity exercise should produce noticeable increases in heart rate and breathing and can be described as exertion of 5–6 out of 10.*
- Examples of moderate intensity physical activities: cycling at an easy pace, walking at 5–6 km/h^{-1}, gardening, housekeeping, playing golf, swimming and playing lawn bowls.

daily have been recommended in non-dialysis, advanced CKD populations to reduce the accumulation of uraemic wastes and the development of associated symptoms.[3] In addition, very-low-protein diets supplemented with keto-analogues have been shown to be efficacious, however, are poorly adhered to.[18] Keto-analogues are not available in clinical practice in many countries, including Australia, and these restrictive plans do not reflect the goals of CKD-RSC such as to enhance dietary flexibility and personal choice. The benefits of progressive resistance training in elderly, CKD populations are described elsewhere and have been shown to improve muscle strength and function[15,16] with protein intakes of 0.6–0.8 g/kg per day, provided energy intake is adequate.[19,20] We recommend a flexible, higher energy, protein-controlled diet to support physical function, reduce the effects of sarcopenia and maintain independence in people on a CKD-RSC pathway.

Malnutrition

Anorexia and subsequent poor oral intake is common in CKD[21] and can lead to malnutrition. Malnutrition is associated with reduced QoL and physical functioning and increased mortality and is reported in up to 40% of patients before initiation of dialysis.[22] Aetiology of malnutrition is complex and multifactorial and includes factors such as anorexia and associated symptoms, systemic inflammation, metabolic acidosis, dialysis-related factors (e.g. losses of amino acids and water soluble vitamins) and psychosocial factors.[4]

Malnutrition prevention and management should focus on strategies to reduce symptom burden, optimize dietary intake, enhance enjoyment of eating, promote healthy bowel function and support physical function and independence. Regular nutrition assessments should be conducted to ensure timely identification of nutrition-related symptoms and biochemical abnormalities and to monitor patients' progress as kidney function declines. Validated tools to measure nutritional status (e.g. Subjective Global Assessment)[2] and symptom burden (e.g. Integrated Palliative Care Outcome Scale-renal)[1] should be used to monitor patients and to help direct nutritional management. Nutrition counselling, food fortification and oral nutrition supplements are all components of nutrition support used to optimize patients' intake. A brief summary of EBP guidelines for the dietary management of non-dialysis and dialysis-dependent populations is outlined in Table 3.[2,3,23,24] Given the lack of specific EBP guidelines for CKD-RSC patients, our opinion is that a flexible approach using clinical judgement and considering a patients whole eating pattern be recommended. Dietary counselling should guide patients to make informed choices, avoid being overly prescriptive or restrictive and provide practical, actionable advice, which takes into account psychosocial and cultural needs and individual goals.

SYMPTOM MANAGEMENT IN RENAL SUPPORTIVE CARE

As CKD advances, patients identify symptom control as a high priority.[25,26] These symptoms may be secondary to the underlying renal disease, to the treatment of the disease and/or to other co-morbidities. Uraemia and associated symptoms become increasingly common and burdensome. Patients with advanced CKD suffer from an average of 9.1 symptoms,[27] varying by type and intensity over time. Table 4 outlines common symptoms reported in advanced CKD. The following section focuses on nutrition-related symptoms and issues; a comprehensive review of non-nutrition-related symptoms has been outlined in previous literature.[1]

NUTRITION-IMPACT SYMPTOMS

Symptoms that impact on oral intake are common in CKD. Timely nutrition support and education can delay symptom onset and help to minimize and manage symptoms when present.

Anorexia

Anorexia, or the lack of appetite, is estimated to affect approximately 35–60% of advanced CKD patients.[28,29] Anorexia in CKD is complex and multifactorial, with the accumulation of uraemic toxins, systemic inflammation, taste changes, dry mouth, gastrointestinal motility disorders, impaired gastric emptying, altered levels of satiety hormones (e.g. ghrelin and leptin) and amino acid imbalances being implicated in the

Table 3 Brief summary of dietary goals

	CKD-RSC	CKD[2,23,24]	Haemodialysis[2,3,24]	Peritoneal dialysis[2,3,24]
Energy (/kg IBW/day)	Individualized based on nutritional status, co-morbidities, physical function and activity levels	30–35 kcal 125–145 kJ	30–35 kcal 125–145 kJ	30–35 kcal 125–145 kJ (including glucose from dialysate)
Protein	0.75–1.0 g/kg IBW/day†	0.75–1 g/kg IBW/day[2] 0.6–0.8 g/kg IBW/day[23,24]	1.2 g/kg IBW/day	1.2 g/kg IBW/day
Potassium	If serum K+ elevated, discuss strategies (e.g. food substitutions)	If serum K+ >6 mmol/L, restrict to 1 mmol/kg IBW/day	1 mmol/kg IBW/day	If serum K+ elevated, restrict to 1 mmol/kg IBW/day
Sodium (mg/day)	Individualized based on symptoms and patient goals‡	1800–2300	1800–2300	1800–2300
Phosphate	Individualized; consider restriction in pruritus§	If serum PO4 > 1.49 mmol/L, restrict to 800–1000 mg	If serum PO4 > 1.79 mmol/L, restrict to 800–1000 mg	If serum PO4 > 1.79 mmol/L, restrict to 800–1000 mg
Fluid (mL/day)	Individually assessed by the medical team	As per medical team	500 mL + 24 h urine output	800 mL + 24 h urine output

†Given the lack of evidence in this area, we suggest adapting recommendations from pre-dialysis and general population guidelines. ‡Restriction may be warranted to help manage fluid overload and minimize associated symptoms. Conversely, sodium intake may be unrestricted in times of malnutrition or inadequate oral intake. §If serum PO4 elevated and patient experiencing pruritus, consider sources of PO4 (Table 5, pruritus). RSC guidelines have been adapted from CKD, non-dialysis evidence-based practice nutrition guidelines. In practice, individual, social and cultural needs should be considered, and clinical judgement applied. CKD, chronic kidney disease; IBW, ideal body weight; RSC, Renal Supportive Care

Table 4 Common symptoms in advanced kidney disease[1]

Anorexia	Fatigue
Dry or sore mouth	Muscle cramps
Taste changes	Cognitive decline
Bad breath	Restless legs
Nausea	Dyspnoea
Dry-retching and vomiting	Sleep disturbances
Gastroparesis	Pain (multifactorial)
Bowel changes	Depression and anxiety
Pruritus	

pathogenesis.[21] Anorexia can lead to inadequate nutritional intake, which may contribute to protein-energy wasting and malnutrition, reduced physical function and poorer QoL.[21,30] Assessment of nutritional intake should be conducted regularly[2] to ensure early detection of anorexia-related decline in dietary intake (Table 5).

Xerostomia (dry mouth)

Salivary flow and composition can vary greatly among individuals with CKD. Changes to the composition of saliva can impact on flow, cause taste changes and contribute to dry mouth.[31] In addition, medications and co-morbidities may further contribute to xerostomia. Strategies to improve oral hygiene and improve a dry mouth should be discussed with patients (Table 5) and can help manage conditions such as dyspnoea from volume overload.

Taste changes

Dysgeusia, or change in taste, is an under-recognized but common complaint in CKD.[32] In CKD, taste and smell disturbances may relate to individual taste genetics, fluid imbalances, toxin accumulation, metabolic derangements and changes in salivary composition. Alterations in taste perception in CKD have been identified for each of the five basic taste qualities, with impaired ability to identify sour, bitter and umami.[33] Alterations in taste often result in aversions to red meat and alcohol, and a preference for carbohydrates, salty and sweet foods. Additionally, excess urea in the saliva is converted to ammonia and carbon dioxide and may lead to an ammonia-like or bitter taste.[34] Strategies to rebalance salivary composition by reducing circulating urea levels and reducing salivary solute and acid load should be explored with patients (Table 5).

Nausea, dry-retching and vomiting

Nausea (including dry-retching) and vomiting affect approximately 29% and 12% of the conservatively managed population, respectively.[35] In advanced CKD, elevated urea can produce a bitter tastant, which is sensed by taste buds found throughout the gastrointestinal tract, and can result in nausea, dry-retching and vomiting.[38] Because this may be chronically present and vary in intensity over time, strategies to neutralize salivary urea concentration and reduce circulating urea levels should be explored (Table 5). Importantly, non-uraemic causes of nausea or vomiting (e.g. medication related or gastroenteritis) should also be explored.

Motility disorders

Motility disorders, such as delayed gastric emptying (e.g. gastroparesis), are frequently reported in advanced CKD and are associated with poor oral intake. Approximately 83% of patients, diabetic and non-diabetic, reporting upper

Table 5 Short summary of nutrition-related symptoms and dietary interventions in advanced CKD

Symptom	Dietary intervention
Anorexia	Avoid any unnecessary dietary restrictions Consider eating environment (e.g. social involvement and avoiding strong smells) Food fortification strategies Consider higher energy, lower protein nutritional supplements
Dry mouth	Avoid excessive sodium intake if thirst present Keep lips and mouth moist - Maintain oral hygiene - Rinse mouth regularly, and spread fluids across the day - Try an artificial saliva - Use lip balm frequently Stimulate saliva production - Add natural food acids (e.g. lemon or lime juice) into fluids - Suck on hard mints, sour lollies or frozen fruit (e.g. grapes), and chew gum
Dysgeusia	Ensure good oral hygiene Rinse regularly with sodium bicarbonate mouthwash or soda water[63] Lack of taste Encourage herbs, spices, pepper, chilli, tart (e.g. lemon), sweet (e.g. honey and sugar) or stronger flavours (e.g. strong cheese) to enhance flavours Metallic or bitter tastes Avoid bitter tasting foods (e.g. red meat, tea, coffee, beer and tonic water) Avoid metal cutlery Add sweet or sour flavours to meals or drinks to reduce bitter taste - Add lemon or lime juice into cooking - Add vinegar to meat marinades or use as salad dressing - Add sugar to tea or coffee Use cold or room temperature foods (e.g. sandwiches) - Allow meats to cool before eating - Have cold drinks (e.g. iced coffee instead of hot) Review protein intake
Nausea, dry-retching and vomiting	Small, regular meals – avoid skipping meals as this may worsen nausea Avoid strong smells or cooking smells (if causing nausea) Rinse regularly with sodium bicarbonate mouthwash or soda water Dry, bland and room temperature foods may be better tolerated Incorporate ginger or ginger products to ease nausea (e.g. ginger tea, ginger ale and crystallized ginger) Anti-emetics Review protein intake
Gastroparesis	Optimize glycaemic control Small regular meals Avoid high protein, fatty and very fibrous foods *Prokinetic medications where appropriate*
Pruritus	Consider non-nutritional aetiology before intervening Assess dietary phosphorus intake – restrict if excessive Consider quality and bioavailability of dietary phosphorus[64]: • Restrict inorganic phosphorus (additives, processed foods), as highly absorbed • Nutrient-dense organic phosphorus, found naturally in plant and animal products foods, should be preferred in the diet because of incomplete absorption Assessment of most appropriate timing of binders (most commonly with meals) and practical advice to encourage adherence
Fluid overload	Practical strategies to encourage sodium restriction (e.g. sources of sodium, label reading, non-salt food flavourings, food swaps and shopping lists) Practical strategies with fluid intake control - Cup sizes, spreading fluid across the day, using water jugs or bottles to monitor intake, using ice, sucking on hard mints, sour lollies or frozen fruit (e.g. grapes) or chew gum
Hyperkalemia	Review for non-diet-related causes • Metabolic acidosis • Severe hyperglycaemia • Catabolism (sepsis, trauma and surgery) • Reduced colonic excretion due to constipation[65] • Medications (e.g. angiotensin-converting enzyme inhibitors, angiotensin receptor blockers, spironolactone, beta-blockers, non-steroidal anti-inflammatories)[66] Assess dietary potassium intake – restrict if excessive Avoid excessive fruit, vegetables and dairy Encourage awareness of portion size and frequency of intake Encourage grain-based foods
Constipation	Encourage higher fibre diet (aim for 30 g daily) - Aim for two serves of fruit and five serves of vegetables, and encourage whole grains in moderation (low potassium options if indicated by serum potassium levels) Soluble dietary fibre supplements - If fluid restricted the type of fibre supplement needs to be considered Encourage fluid intake (within allowance) Encourage regular physical activity as tolerated
Diarrhoea	Consider aetiology and chronicity Low-fibre diet may be required short-term Consider if a dietary fibre supplement for bulking stool is appropriate Dietary electrolyte and nutrient intake may need to be increased (biochemical parameters should be monitored)

(*Continues*)

gastrointestinal symptoms have abnormal gastric motility.[36] Dietary management to reduce urea production and control symptoms should be explored (Table 5) and should address the primary cause of dysfunction.

OTHER NUTRITIONAL ISSUES

Dyspnoea

Dyspnoea can be related to fluid overload, cardiac and respiratory dysfunction, acidosis, anaemia or a combination of these. Diuretics and fluid restrictions are commonly used to manage fluid overload and oedema, particularly in dialysis patients. Fluid restrictions may be required in CKD-RSC for symptom relief. Adherence to fluid restriction is a significant challenge for any person if thirst is not well managed. Dietary sodium restriction to reduce thirst and fluid retention should accompany fluid restriction.[37] Dietary advice focuses on dietary sodium restriction, sources of fluid, practical ways to restrict fluid intake and maintain salivary flow (Table 5).

Pruritus

Pruritus affects between 10% and 77% of people with advanced CKD[27,28,39] and is associated with reduced mental and physical QoL, depression, increased sleep disturbances and an increased risk of mortality.[39] Pathophysiology of uraemic pruritus remains unclear with numerous proposed mechanisms of action, including xerosis, secondary hyperparathyroidism with altered electrolyte concentrations, neurophysiological mechanisms, inflammatory processes and abnormal plasma and/or cutaneous composition of fatty acids.[40–42] Nutrition interventions can address some of these mechanisms, including hyperphosphataemia, some inflammatory processes and altered essential fatty acid levels[39] (Table 5). Omega-3 fatty acid (e.g. fish oil), gamma-linolenic acid (e.g. evening primrose oil) and turmeric supplementation have led to improvements of pruritus,[41,43,44] likely because of their anti-inflammatory properties; however, evidence is weak but evolving.

Hyperkalaemia

Hyperkalaemia is a priority as it is potentially life-threatening[45]; however, restriction should be considered within the context of stage of CKD and treatment goals. Dietary potassium restriction has significant impact on eating patterns including many healthy foods. Before restriction is recommended, dietary potassium intake should be assessed, and non-diet-related causes of hyperkalaemia considered (Table 5). When overall dietary intake is reduced (e.g. because of poor appetite), it is likely that potassium intake is also reduced and restriction may be counterproductive to overall goals of maintaining nutritional status and QoL. A carefully planned, patient-focused lower potassium diet can reduce risk of hyperkalaemia and diet-related anxiety (see Appendix I).

Abnormal bowel function

Abnormal bowel function is common, with constipation reported in 35% of conservatively managed patients.[46] Constipation can contribute to nausea, anorexia, early satiety, hyperkalaemia and reduced QoL. Constipation is exacerbated by medications, restricted fluid intakes, physical inactivity and lower dietary fibre intake.[47] Inadequate dietary fibre intake has been reported in the CKD population[48] with increased fibre intake being shown to improve constipation.[49]

Additionally, inadequate dietary fibre intake has been shown to change the composition of intestinal microbiota that has been associated with chronic inflammation and reduced immune function in CKD.[48] Therefore, overly restrictive potassium intake, which often correlates to lower fibre intake, may be counterproductive in CKD-RSC. Dietary assessment should consider fibre, potassium and fluid in the context of overall daily intakes (Table 5). Dietary intervention may reduce pill burden associated with frequent laxative use. Frequent, loose bowel motions are less common, affecting approximately 10% of advanced CKD patients,[46] but can lead to nutrient malabsorption and may contribute to malnutrition. Aetiology needs to be investigated, and dietary interventions should be aimed at optimizing absorption and replacement of nutrient and electrolyte losses.

NUTRITION AT END OF LIFE

End-of-life care can be defined as the final months or weeks of life.[50] There is limited literature or evidence regarding nutrition management at EoL in the renal population, with current knowledge predominantly coming from oncology and palliative care. A reduced desire and ability to eat and drink are key features of the dying process.[51,52] Understanding these changes can assist patients and families to create realistic expectations of nutrition at the EoL.[53] Managing nutrition-impact symptoms, optimizing food enjoyment and minimizing food-related discomfort become more important than the quantity of food eaten in EoL.[5] Importantly, nutritional care should remain patient centred, with nutrition counselling and/or food provision being driven by patients and their families. For patients at EoL, eating may be associated with physical discomfort, and discussions with caregivers to avoid forcing patients to eat can provide the permission and encouragement needed to refocus away from adequate nutrition towards comfort, the quality of their relationships and social interactions (see Appendix II).[9]

Consider social and cultural aspects of nutrition at EoL

Food has greater importance than the provision of nutrients and is closely linked with showing love and care.[5,51] When nearing EoL, reduced food and fluid intake can become a source of anxiety for caregivers.[51,52] Families need reassurance that this is a natural process in the dying patient and practical advice for showing care other than with feeding. Mouth care or including the patient in the social aspects of mealtimes can still be positive experiences for patients and their families.

Dietary restrictions can be relaxed, refocusing on culturally specific foods and those most enjoyed. Patients may choose to continue nutritional supplements for comfort, however, not with the goal of meeting nutrition requirements.

Is enteral nutrition appropriate at EoL?

Enteral nutrition (EN) at the EoL is generally not considered appropriate. There is insufficient evidence that EN can improve patient outcomes and has been associated with increased burden and discomfort.[52,54] Although there may be times where EN may provide some value for personal, cultural or religious reasons, in general, at EoL, EN does not align with CKD-RSC goals of maintaining dignity and comfort, relieving symptom burden and improving QoL.[50]

CONCLUSION

Nutritional management plays an integral role in caring for people in CKD-RSC. Dietitians can provide relevant, practical and culturally appropriate nutritional advice to enhance patient care. Nutrition recommendations should be flexible and need to be evaluated within the context of patient and treatment goals. Appropriate and timely intervention can assist in managing symptoms, improving QoL through promoting physical function and independence, reducing unwarranted diet-related anxiety and supporting patients, and their families, in making informed decisions.

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APPENDIX

A. Appendix I

Scenario: an elderly widower wants to include bananas and stone fruits sometimes because he enjoys them, but his daughter refuses to let him have any of these fruits them because she fears they may cause high potassium levels.

Practice tips:

- Discuss serum potassium targets, sources of dietary potassium and the potential risks of hyperkalaemia.
- Exclude non-dietary causes of hyperkalaemia. Discuss with the medical team.
- Assess overall nutritional intake for potassium sources.
- Discuss a balanced dietary approach, and educate about portions and frequency of high-potassium foods.
- Identify strategies that enable the patient to incorporate desired foods (e.g. substitute foods or fluids in other parts of diet).
- • Reassure family about monitoring and ongoing follow-up.

B. Appendix II

Scenario: Food has been an integral part of family life for Mr A. His family have become distressed at his lack of interest in food and feel helpless to how they can best support Mr A in the terminal phase of illness.

Practice tips:

- Explore concerns of both patient and family regarding eating.
- Educate family on goals of nutrition in end of life.
- Reassure the family that lack of interest in food is a natural part of the terminal phase. Allow the patient to eat/drink what they wish. Forcing the patient to eat/drink is inappropriate and may cause harm (e.g. aspiration). Simply keeping the patient's mouth moist is usually all that is required.

If applicable: relax dietary restrictions in line with patient and family preferences to enhance the social aspects of eating